

# SK 50 DGDL 126 T



**SEMITOP<sup>®</sup>4**

**3-phase bridge rectifier +  
brake chopper + 3-phase  
bridge inverter**  
**SK 50 DGDL 126 T**

Target Data

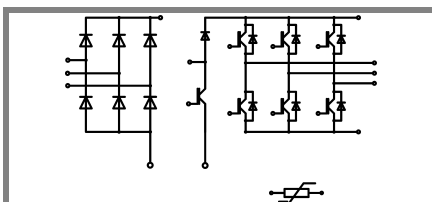
## Features

- One screw mounting module
- Fully compatible with SEMITOP<sup>®</sup>1,2,3
- Improved thermal performances by aluminium oxide substrate
- Trench IGBT technology
- CAL technology free-wheeling diode
- Integrated NTC temperature sensor

## Typical Applications

- Inverter up to 28 kVA
- Typ. motor power 15 kW

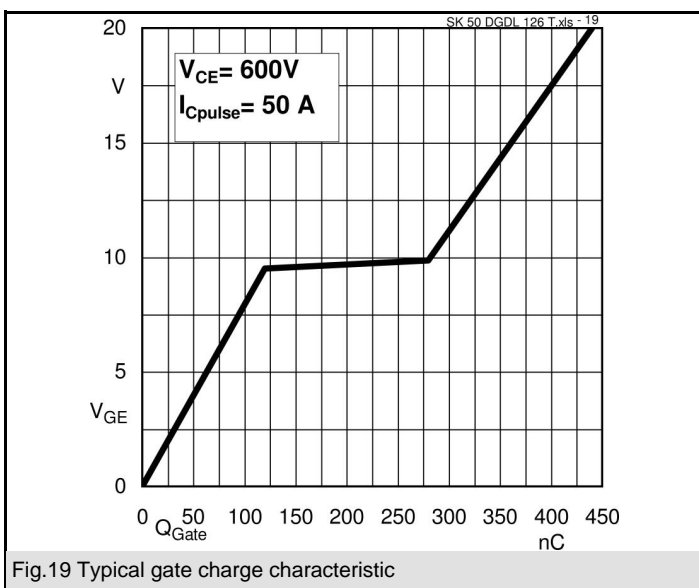
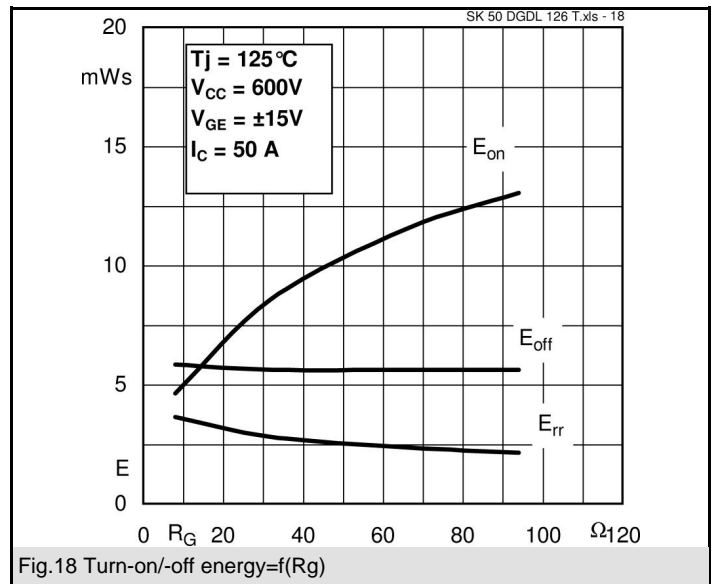
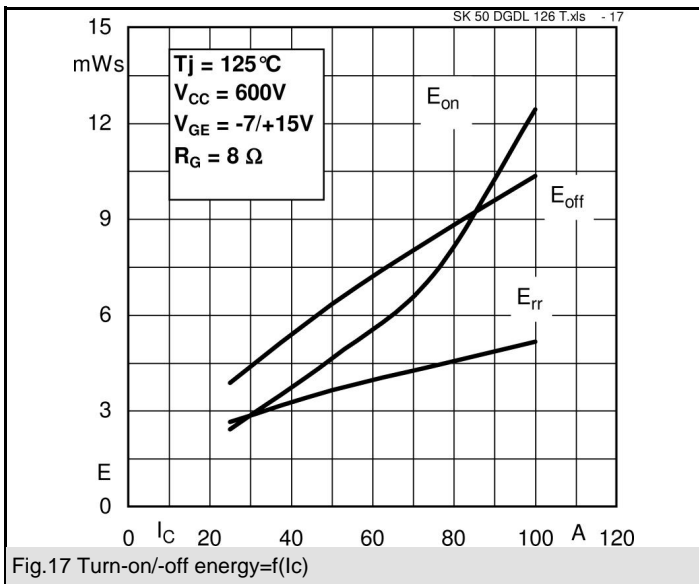
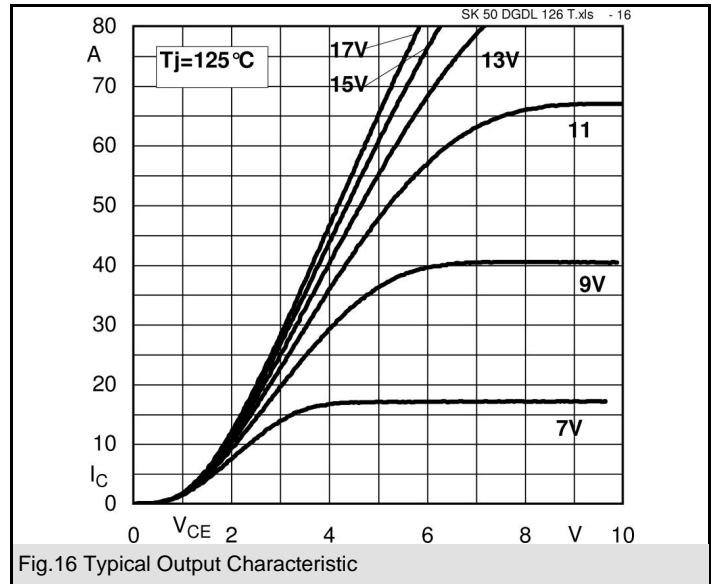
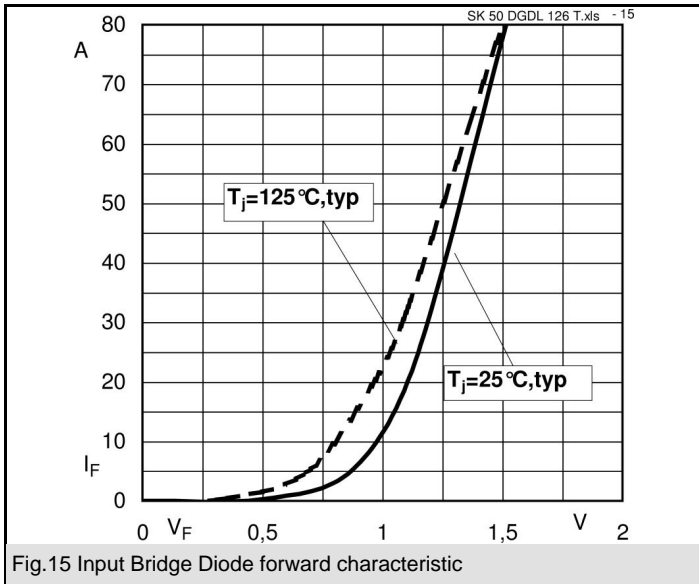
- 1)  $V_{ce,sat}$ ,  $V_f$  = chip level value
- 2) For IGBT chopper diagrams please refer to SK35DGDL126T

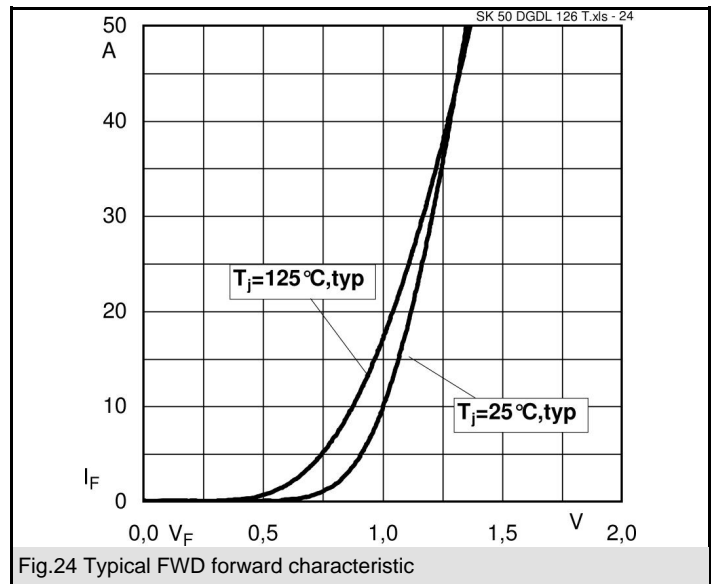
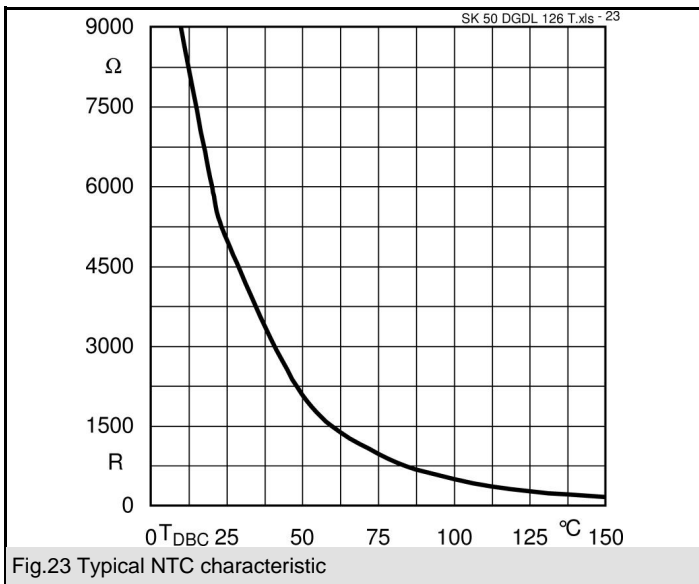
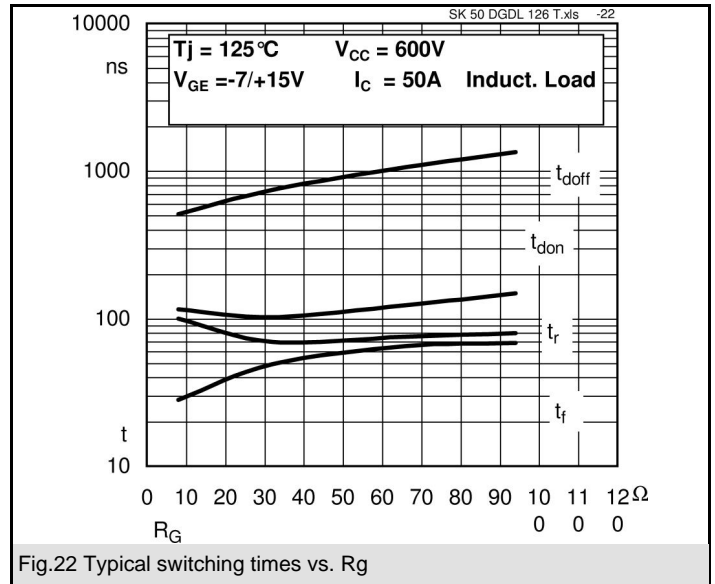
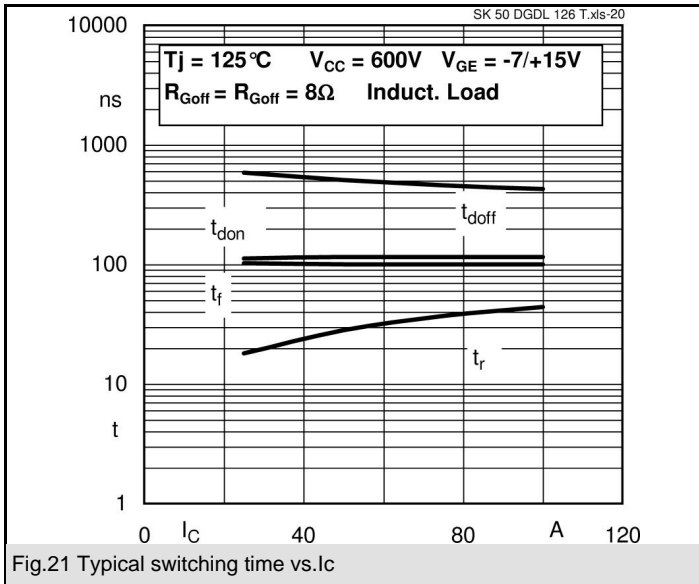


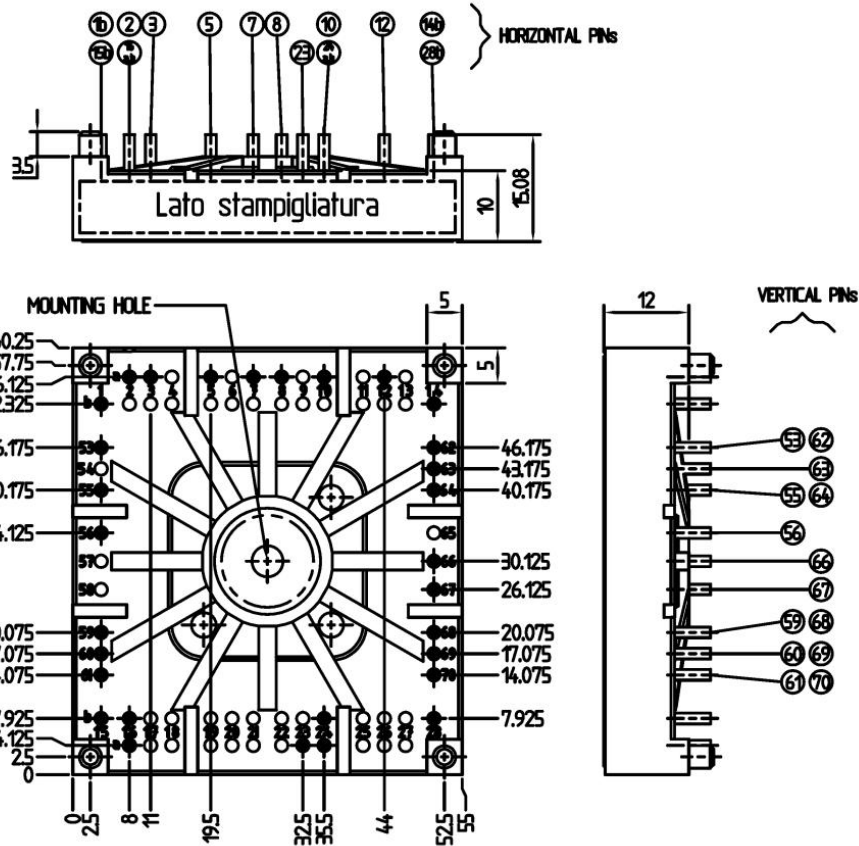
DGDL - T

Absolute Maximum Ratings		Ts = 25 °C, unless otherwise specified	
Symbol	Conditions	Values	Units
<b>IGBT - Inverter. For IGBT chopper maximum ratings, please refer to SK35DGDL126T</b>			
$V_{CES}$		1200	V
$I_C$	$T_s = 25 (70) ^\circ C$	68 (52)	A
$I_{CRM}$	$I_{CRM} = 2 \times I_{Cnom}, t_p = 1 \text{ ms}$	100	A
$V_{GES}$		$\pm 20$	V
$T_j$		-40 ... +150	$^\circ C$
<b>Diode - Inverter,Chopper</b>			
$I_F$	$T_s = 25 (70) ^\circ C$	62 (46)	A
$I_{FRM}$	$I_{FRM} = 2 \times I_{Fnom}, t_p = 1 \text{ ms}$	100	A
$T_j$		-40 ... +150	$^\circ C$
<b>Rectifier</b>			
$V_{RRM}$		1600	V
$I_F$	$T_s = 70 ^\circ C$	45	A
$I_{FSM} / I_{TSM}$	$t_p = 10 \text{ ms}, \sin 180^\circ, T_j = 25 ^\circ C$	700	A
$I_t^2$	$t_p = 10 \text{ ms}, \sin 180^\circ, T_j = 25 ^\circ C$	2400	A <sup>2</sup> s
$T_j$		-40 ... +150	$^\circ C$
$T_{sol}$	Terminals, 10 s	260	$^\circ C$
$T_{stg}$		-40 ... +125	$^\circ C$
$V_{isol}$	AC, 1 min. / 1 s	2500 / 3000	V

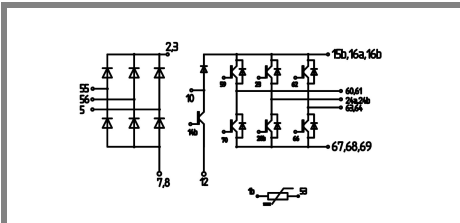
Characteristics		Ts = 25 °C, unless otherwise specified			
Symbol	Conditions	min.	typ.	max.	Units
<b>IGBT - Inverter. For IGBT chopper electrical characteristics, please refer to SK35DGDL126T</b>					
$V_{CEsat}$	$I_C = 50 \text{ A}, T_j = 25 (125) ^\circ C$		1,7 (2)	2,15 (2,45)	V
$V_{GE(th)}$	$V_{GE} = V_{CE}, I_C = 2 \text{ mA}$	5	5,8	6,5	V
$V_{CE(TO)}$	$T_j = 25 ^\circ C (125) ^\circ C$		1 (0,9)	1,2 (1,1)	V
$r_T$	$T_j = 25 ^\circ C (125) ^\circ C$		14 (22)	19 (27)	m $\Omega$
$C_{ies}$	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		3,7		nF
$C_{oes}$	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,18		nF
$C_{res}$	$V_{CE} = 25 \text{ V}, V_{GE} = 0 \text{ V}, f = 1 \text{ MHz}$		0,16		nF
$R_{th(j-s)}$	per IGBT		0,6		K/W
$t_{d(on)}$	under following conditions		115		ns
$t_r$	$V_{CC} = 600 \text{ V}, V_{GE} = \pm 15 \text{ V}$		28		ns
$t_{d(off)}$	$I_C = 50 \text{ A}, T_j = 125 ^\circ C$		509		ns
$t_f$	$R_{Gon} = R_{Goff} = 8 \Omega$		100		ns
$E_{on}$	inductive load		4,6		mJ
$E_{off}$			6,3		mJ
<b>Diode - Inverter,Chopper</b>					
$V_F = V_{EC}$	$I_F = 50 \text{ A}, T_j = 25 (125) ^\circ C$		1,35 (1,35)		V
$V_{(TO)}$	$T_j = 25 ^\circ C (125) ^\circ C$		0,95 (0,85)		V
$r_T$	$T_j = 25 ^\circ C (125) ^\circ C$		8 (10)		m $\Omega$
$R_{th(j-s)}$	per diode		1		K/W
$I_{RRM}$	under following conditions		30		A
$Q_{rr}$	$I_F = 50 \text{ A}, V_R = 600 \text{ V}$		10		$\mu C$
$E_{rr}$	$V_{GE} = 0 \text{ V}, T_j = 125 ^\circ C$		3,6		mJ
	$di_F/dt = 500 \text{ A}/\mu s$				
<b>Diode - Rectifier</b>					
$V_F$	$I_F = 35 \text{ A}, T_j = 25 ^\circ C$		1,1		V
$V_{(TO)}$	$T_j = 150 ^\circ C$		0,8		V
$r_T$	$T_j = 150 ^\circ C$		11		m $\Omega$
$R_{th(j-s)}$	per diode		0,9		K/W
<b>Temperatur sensor</b>					
$R_{ts}$	5 %, $T_r = 25 (100) ^\circ C$		5000(493)		$\Omega$
<b>Mechanical data</b>					
w			60		g
$M_s$	Mounting torque		3,5		Nm







Case T 75 (Suggested hole diameter for the solder pins in the circuit board: 2mm. Suggested hole diameter for the mounting pins in the circuit board: 3,6mm )



Case T 75 (pin without letter refers to row "a", unless otherwise specified)

This is an electrostatic discharge sensitive device (ESDS), international standard IEC 60747-1, Chapter IX.

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